

REMARKS

Claims 1-8 and 11 are pending in this application.

Claims 1-8 and 11 are rejected under 35 U.S.C. §103 as being unpatentable over LaPierre et al. (U.S. Patent No. 5,128,024) (“LaPierre”) and Steigleder et al. (U.S. Patent No. 4,894,142) (“Steigleder”). This rejection is respectfully traversed.

The subject matter of claims 1-8 and 11 would not have been obvious over LaPierre and Steigleder, considered alone or in combination. The cited prior art references, alone or in combination, do not teach or suggest all limitations of claim 1.

The claimed invention relates to a specific process of selectively converting a hydrocarbon containing feedstock to middle distillates. In the process of the claimed invention, the catalyst is substantially more selective for middle distillate production.

In contrast, LaPierre relates to a process for simultaneous catalytic hydrocracking and hydrodewaxing of hydrocarbon oils using a catalyst based on zeolite beta. Zeolite beta catalyzes the conversion of aromatics and naphthalenes present in the feedstock by hydrocracking reaction, such as dealkylation, ring opening and cracking, followed by hydrogenation. The long chain paraffins present in the feedstock, together with the paraffins produced by the hydrocracking of the aromatics, are converted to products which are less waxy than the stray chain n-paraffins, thereby effecting a simultaneous dewaxing (as disclosed, for example, in columns 3, lines 3 to 18 and 30 to 40). Thus, the process of LaPierre is not concerned with the selective production of middle distillates and (as mentioned by the Examiner himself on page 4 of the Office Action) not all relevant parameters, such as the ion exchange capacity – acidity index or the NH₃-TPD acidity index are disclosed in LaPierre.

Steigleder fails to supplement the deficiencies of LaPierre. Steigleder discloses a highly selective hydrocracking process providing increased yields of middle distillates. The disclosed

catalyst is a zeolite Y type, and it is stated that a superior catalyst results when the NH₃-TPD acidity strength value of the zeolite component is less than about 2.00.

In the February 14, 2008 Office Action, the examiner asserts that it would have been obvious to apply the teachings of Steigleder to the process of LaPierre, to provide low acidic zeolites that are suitable for making middle distillates. Applicants disagree with this assertion.

LaPierre specifically teaches large pore zeolites, such as zeolite X or Y, which are conventionally used for hydrocracking processes because of their large pore size. This allows entry of the high molecular weight hydrocarbons which are principal components of the feedstocks for simultaneous catalytic hydrocracking and hydrodewaxing into the zeolite pores. The high molecular weight hydrocarbons will not enter the internal pore structure of smaller pore zeolites and, therefore, will not undergo conversion. The use of large pore zeolite leads to products that are waxier than the feedstock (as referred to column 1, line 67 to column 2, line 34). Thus, LaPierre teaches away from the use of a zeolite Y type catalyst. Accordingly, a person of ordinary skill in the art would not have been motivated to combine the process of Steigleder (disclosing in particular a zeolite Y type catalyst) with LaPierre, as zeolite Y is not a suitable catalyst in LaPierre.

In addition, even if *arguendo* the process of Steigleder would be combinable with that of LaPierre, the resulting combination would still not teach or suggest all limitations of the claimed process. Steigleder teaches the application of a zeolite having an NH₃-TPD acidity strength value of less than about 2.00. However, in the process of the claimed invention, the NH₃-TPD acidity strength value of the zeolite is first measured, followed by determining the NH₃-TPD acidity index. These two parameters are not identical. As detailed on page 23 of the application, the NH₃-TPD acidity index is the wide percentage of the zeolite in the catalyst support normalized by a catalyst support containing 1-wt% of a standard zeolite beta having a specific silica-alumina molar ratio and a specific NH₃-TPD acidity.

The NH₃-TPD acidity index is thus obtained from several individual parameters, amongst others from the specific standard zeolite beta, and there is no mention of these individual

parameters or any indication of the effect of these parameters on the selectivity to middle distillates in either LaPierre or Steigleder. Thus, neither LaPierre nor Steigleder teaches or suggests an improved selectivity to middle distillates of a process using a catalyst based on a zeolite beta having an NH₃-TPD acidity index of less than 3.5 or an ion exchange capacity-acidity index of less than 3.7.

Allowance of all pending claims is solicited.

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